CLAIMS

Following is a listing of the current claims:

1-122. (canceled)

123. (Previously presented) Apparatus comprising:

a capsule, adapted to be swallowed by a subject, and comprising:

at least one radiation source, adapted to emit radiation having an energy of at least 10 keV; and

at least one photon detector, adapted to detect photons generated responsively to the emitted radiation, the photons having an energy of at least 10 keV;

a radiopaque oral contrast agent, adapted to be administered to the subject; and

a control unit, adapted to analyze data regarding the photons in order to generate information useful for identifying a clinically-relevant feature of a gastrointestinal (GI) tract of the subject.

124. (Previously presented) The apparatus according to claim 123, wherein the agent comprises an agent having a high Z, adapted to be administered to the subject.

125. (Previously presented) The apparatus according to claim 123, wherein the radiation source comprises a radioisotope.

126. (Previously presented) The apparatus according to claim 123, wherein the radiation source comprises at least one collimator, adapted to collimate the radiation emitted by the radiation source.

127. (Previously presented) The apparatus according to claim 123, wherein the photon detector comprises at least one collimator, adapted to collimate the photons detected by the photon detector.

128. (Previously presented) The apparatus according to claim 123, wherein the control unit is adapted to distinguish between gas in the GI tract and the clinically-relevant feature.

129. (Previously presented) The apparatus according to claim 123, wherein the control unit is adapted to analyze X-ray fluorescence (XRF) photons generated responsively to the emitted radiation.

130. (Previously presented) The apparatus according to claim 123, wherein the control unit is adapted to analyze X-ray fluorescence photons generated responsively to the emitted radiation, and Compton backscattered photons generated responsively to the emitted radiation.

131. (Previously presented) The apparatus according to claim 123, wherein the control unit is adapted to estimate a distance from a site of the capsule to a wall of the GI tract.

132. (Previously presented) The apparatus according to claim 131, wherein the control unit is adapted to analyze Compton backscattered photons generated responsively to the emitted radiation.

133. (Previously presented) The apparatus according to claim 132, wherein the control unit is adapted to estimate the distance by estimating a depth of the contrast agent between the site of the capsule and the wall of the GI tract responsively to the analysis of the Compton backscattered photons.

134. (Previously presented) The apparatus according to claim 131, wherein the control unit is adapted to analyze X-ray fluorescence (XRF) photons generated responsively to the emitted radiation.

135. (Previously presented) The apparatus according to claim 123, wherein the radiation source is adapted to emit the radiation from the capsule only a portion of a time that the capsule is in the GI tract.

136. (Previously presented) The apparatus according to claim 135, wherein the capsule comprises a sensor, adapted to sense a parameter indicative of possible imminent motion of the capsule in the GI tract, and wherein the radiation source is adapted to emit the radiation from the capsule responsively to the sensing of the parameter by the sensor.

137. (Previously presented) The apparatus according to claim 135, wherein the radiation source comprises a radioisotope, wherein the capsule comprises a radiation shield, and wherein the capsule comprises an actuator, adapted to move at least one of the radiation source and the shield, such that the shield does not block the radiation emitted from the radiation source during the portion of the time.

138. (Previously presented) The apparatus according to claim 123, wherein the capsule comprises an inflatable balloon, adapted to inflate around the capsule.

139. (Previously presented) The apparatus according to claim 123, wherein the at least one photon detector comprises a plurality of photon detectors, arranged to detect photons arriving from a plurality of respective detection directions.

140. (Previously presented) The apparatus according claim 123, wherein the capsule comprises at least one radiation shield.

141. (Previously presented) The apparatus according to claim 140, wherein the at least one shield is configured to prevent radiation from being emitted from the radiation source in directions other than a single confined solid sector relative to a sphere surrounding the capsule.

142. (Previously presented) The apparatus according to claim 123, wherein the clinically-relevant feature includes a pathological abnormality of the GI tract.

143. (Previously presented) The apparatus according to claim 142, wherein the pathological abnormality includes a polyp.

144. (Previously presented) The apparatus according to claim 123, wherein the control unit is adapted to detect that the capsule has reached an area of clinical interest within the GI tract.

145. (Previously presented) The apparatus according to claim 144, wherein the control unit is adapted to withhold the emission of radiation by the radiation source until the capsule has reached the area of clinical interest.

146. (Previously presented) The apparatus according to claim 145, wherein the control unit is adapted to withhold the photon detector from detecting photons, and to withhold the control unit from analyzing data, until the capsule has reached the area of clinical interest.

147. (Previously presented) The apparatus according to claim 144, wherein the control unit is adapted to detect that the capsule has reached the area by detecting and analyzing X-ray fluorescence (XRF) photons.

148. (Previously presented) The apparatus according to claim 144, wherein the capsule comprises a pressure sensor, and wherein the control unit is adapted to detect that the capsule has reached the area responsively to a change in pressure detected by the pressure sensor.

149. (Previously presented) The apparatus according to claim 148, wherein the control unit is adapted to withhold the emission of radiation by the radiation source until the capsule has reached the area of clinical interest.

150. (Previously presented) The apparatus according to claim 149, wherein the control unit is adapted to withhold the photon detector from detecting photons, and to withhold the control unit from analyzing data, until the capsule has reached the area of clinical interest.

151. (Previously presented) The apparatus according to claim 148, wherein the control unit is adapted to detect that the capsule has reached the area by detecting and analyzing X-ray fluorescence (XRF) photons, and responsively to the change in pressure.

152. (Previously presented) The apparatus according to claim 123, wherein the capsule comprises at least one extending element, adapted, when extended, to maintain the capsule at least a certain distance from a wall of the GI tract.

153. (Previously presented) The apparatus according to claim 123, wherein the capsule comprises at least one extending element, adapted, when extended, to orient a long axis of the capsule generally parallel to a longitudinal axis of the GI tract.

154. (Previously presented) The apparatus according to claim 153, wherein the extending element comprises an expandable flexible chamber, wherein the flexible chamber comprises a super-absorbent hydrogel, and wherein the flexible chamber is adapted to expand when the hydrogel absorbs liquids from the GI tract.

155. (Previously presented) A method comprising:

administering a radiopaque oral contrast agent to a subject;

emitting, from within a gastrointestinal (GI) tract of a subject, radiation having an energy of at least 10 keV;

detecting, from within the GI tract, photons generated responsively to the emitted radiation, the photons having an energy of at least 10 keV; and

analyzing data regarding the detected photons in order to generate information useful for identifying a clinically-relevant feature of the GI tract.